CLAIMS

What is claimed is:

1. A reciprocating frame saw blade for cutting a workpiece, comprising:

a) a blade member having a concave cutting edge; and

b) a plurality of superabrasive tool segments brazed along the cutting edge of the blade member.

2. The reciprocating frame saw blade of claim 1, wherein the blade member is steel.

3. The reciprocating frame saw blade of claim 1, wherein the blade member is flexible, and the concave configuration of the cutting edge is a result of the flexibility.

4. The reciprocating frame saw blade of claim 1, wherein the superabrasive tool segments further comprise:

a plurality of substrate layers arranged in a substantially parallel relationship, each layer having a plurality of superabrasive particles bonded thereto.

5. A saw blade for cutting a workpiece, comprising:

a) a blade member; and

b) a plurality of superabrasive tool segments, each brazed along a cutting edge and at least a portion of each side of the blade member.

6. The saw blade of claim 5, wherein the widths of the plurality of superabrasive tool segments are substantially uniform.

7. The saw blade of claim 6, wherein the widths of the plurality of superabrasive tool segments are substantially equal to the width of the blade member.

8. The saw blade of claim 7, wherein the widths of the plurality of superabrasive tool segments vary from one another.

9. The saw blade of claim 7, wherein the superabrasive tool segments further comprise:

a plurality of substrate layers arranged in a substantially parallel relationship, each matrix layer having a plurality of superabrasive particles bonded thereto.

10. A superabrasive tool segment for use in a saw blade comprising:

a plurality of substrate layers arranged in a substantially parallel relationship, each layer having a plurality of superabrasive particles bonded thereto.

11. The superabrasive tool segment of any of claims 4, 9, or 10, wherein the superabrasive particles are chemically bonded with a brazing alloy.

12. The superabrasive tool segment of any of claims 4, 9, or 10, wherein the superabrasive tool segment has a porosity of at least about 5%.

13. The superabrasive tool segment of claim 12, wherein the porosity is at least about 10%.

14. The superabrasive tool segment of claim 11, wherein the brazing alloy is provided as a layer of amorphous braze alloy between the diamond particles and the substrate layers.

15. The superabrasive tool segment of claim 11, wherein the brazing alloy is provided as a solidified coating of molten braze alloy on each superabrasive particle.

16. The superabrasive tool segment of claim 11, wherein the brazing alloy is provided as a powder in communication with the superabrasive particles and the substrate layers.

17. The superabrasive tool segment of any of claims 4, 9, or 10, wherein the plurality of substrate layers have a width that is sufficient to allow an uncut ridge in a kerf to crumble to swarf.

18. The superabrasive tool segment of claim 17, wherein the width of the substrate layers is less than about 1mm.

19. The superabrasive tool segment of claim 17, wherein the width of the substrate layers is about 0.5mm.

20. The superabrasive tool segment of any of claims 4, 9, or 10, wherein the plurality of substrate layers comprise a material selected from the group consisting essential of: cobalt, nickel, iron, copper, carbon, tungsten, tungsten carbide, steel, stainless steel, bronze, and mixtures thereof.

21. The superabrasive tool segment of claim 20, wherein the substrate layer material is copper.

22. A method of making a superabrasive tool saw segment as recited in any of claims 4, 9, or 10, comprising the steps of:

a) providing a plurality of substrate layers;

b) arranging superabrasive particles on the substrate layers;

c) assembling, or placing the substrate layers in a substantially parallel relationship; and

d) chemically bonding the superabrasive particles to the substrate layers with a brazing alloy, such that the segment receives a porosity of at least about 5%.